

A First List of Derbyshire Agarics.

By THOMAS GIBBS.



THE following paper is intended as a first essay towards an enumeration of the species of Fungi found in Derbyshire.

The Flowering Plants and Higher Cryptogams, Mosses, Hepatics, and Characeæ, have already been treated with great thoroughness by the Rev. W. R. Linton in his excellent *Flora of Derbyshire*, but the author did not attempt to deal with the two lowest classes of plants, the Fungi and Algæ (except the Characeæ), there being practically no records of work done within the county upon these two groups.

Within the last two or three years, however, some progress has been made towards remedying this deficiency, at least as regards the higher families of the Fungi, and it now seems desirable that in the case of the best known family, the *Agaricaceæ*, comprising those species popularly known as Mushrooms and Toadstools, a commencement should be made in recording the species already noticed in the county, together with localities for such as are not universally common.

In the hope that this paper may be the means of leading others to take up an interesting but too much neglected branch of botany, I have been tempted to go somewhat outside the usual lines of a mere local plant-list by introducing a short account, illustrated by some diagrammatic figures, of the more obvious structural characters of the *Agaricaceæ*, and giving at the head of each genus a short diagnosis or summary of its leading characters.

The *Agaricaceæ* are the largest and best known family of the Order *Basidiomycetes*, which includes all those fungi which bear their spores outside special cells called *basidia*, as opposed to the *Ascomycetes*, whose spores are formed inside flask-like cells called *asci*.

The distinguishing feature of the family *Agaricaceæ* is that the hymenium or spore-bearing surface is spread over a number of thin plates called "gills," arranged radially round the stem underneath the cap or "pileus." The Order *Basidiomycetes* contains several other families, distinguished by the different forms of the hymenium; thus, in the family *Polyporaceæ*, the hymenium consists of a mass of tubes or pores, and in the *Hydnaceæ* of spine-like processes; in the remaining families the hymenium is not differentiated into these special forms, but is spread indifferently over the whole above-ground portion of the plant: the *Clavariaceæ* being distinguished by the hymenium being vertical, and either club-like or branched; the *Thelephoraceæ* by the hymenium being smooth and horizontal; and the *Tremellaceæ* by the substance being gelatinous when moist, and horny when dry.

These six families together form the sub-order *Hymenomyces*, distinguished by the hymenium being borne on the outer surface of the fungus throughout its development; the other sub-order, the *Gastromycetes*, which includes the Puff-balls, Stink-horns and Bird's-nest fungi, being distinguished by having the hymenium enclosed within the body of the fungus until the spores are mature.

A Mushroom or Toadstool consists of three principal parts: the *cap*, the *stem*, and the *gills*; and I propose now to describe briefly these parts, and the chief structural modifications to which they are liable.

The cap or *pileus*, as it is technically called, is usually more or less convex or dome-like; in some species there is a raised boss in the centre, the *pileus* is then called *umbonate* (fig. 2); in others, the centre is slightly lower than the margin, it is then called *depressed* (fig. 8); other terms are *umbilicate*,

when there is a sudden deep depression in the centre, as in fig. 6; and *infundibuliform* (funnel-shaped) when the margin is much higher than the centre (fig. 3). In many species the margin of the pileus is more or less incurved or involute, as in *Paxillus involutus* (fig. 8), but this character is usually only seen in the young plant.

The Stem is usually cylindrical or nearly so, and is in some species solid, in others hollow; it also varies much in thickness in different species. In the Mushroom, and in the great majority of Agarics, the stem is *central*, or fixed to the centre of the pileus; but in some species, chiefly those which grow on tree trunks or stumps, it is *lateral* or *excentric*, *i.e.*, attached at or near the margin of the pileus, or it may be absent altogether, when the pileus is said to be *sessile*; in this case the pileus may be attached by one side like a bracket, when it is called *dimidiate*, or else by what is usually the apex or top, so that the fungus appears to be growing upside down; it is then said to be *resupinate*.

The Gills.—Attached to the underside of the pileus are a number of thin plates, like knife-blades; these are arranged radially round the stem, and are of various lengths, the longest reaching from the margin of the pileus to the apex of the stem, while others are only half this length, and others again only extend a very short distance from the margin. These plates are the *gills*, and form the hymenium or spore-bearing portion of the mushroom.

The mode of attachment of the gills is one of the most important points to notice in studying the Agarics. In the Mushroom they are not attached to the stem at all, and are called *free* (fig. 2); in other cases the back of the gill is attached to the stem by its whole breadth: the gill is then said to be *adnate* (fig. 5); between these two states we have gills described as *adnexed*, when the back is only attached by a very small part of its breadth (figs. 6 and 7), and *sinuate*, when there is a small notch or "sinus" near the stem (fig. 4); finally, in many species the backs of the gills run down the

stem for some distance, gradually decreasing in breadth until they become mere lines: the gills are then said to be *decurrent* (figs. 3 and 8).

The gills vary much in breadth, being relatively broad in the common Mushroom, while in some species of *Marasmius* and *Cantharellus* they are reduced to little more than mere raised lines. They also vary in the distance apart; thus in the Mushroom the gills are very numerous, and are closely crowded together, almost like the leaves of a book; while in some species of *Marasmius* and *Hygrophorus* they are few in number, and far apart, like spokes in a wheel: they are then described as "distant."

Rather above the middle of the stem there is, in the Mushroom, a white frill of soft membrane: this is the *Ring* or *Partial Veil* (fig. 1a); in the young or "button" stage it is attached to the margin of the pileus, and completely covers up and protects the gills, but when the spores are mature, and the pileus expands, the veil breaks away from the margin, leaving the ring attached to the stem, and sometimes also a few fragments attached to the margin of the pileus.

A structure which is not present in the Mushroom, but is conspicuous in certain other Agarics, is the *Volva* or *Universal Veil*; this is a membrane which encloses the whole of the fungus in its earliest stage. As the stem lengthens and the pileus expands the membrane becomes ruptured, the lower portion remaining attached to the foot of the stem, sometimes as a loose cup (fig. 1b), sometimes as a close-fitting sheath, as in the beautiful "Fly Agaric" (*Amanita muscaria*), while the upper portion often remains on the pileus, becoming broken up either into a few large patches (as in fig. 1c) or into many small concentrically arranged whitish or pale warts. A few species possess both Volva and Ring; others have a Volva but no Ring, many others a Ring but no Volva; but by far the largest number of Agarics possess neither of these structures.

All these characters—the attachment of the gills, presence or absence of Volva or Ring, and position or absence of stem

—are of great importance in identifying species, but the first character to notice is the *colour of the spores*, as according to this any Agaric may at once be located in one of five primary groups.

The spores of the Mushroom are dark brownish purple, but many species have white spores, others salmon-pink, and browns of various shades, from ochraceous to bright rust colour; others black, and one rare species has green spores.

The colour of the spores can often be guessed from that of the gills, but a more certain method of determining it is by laying the pileus gills downward upon a piece of paper, and so leaving it for some hours; by this means we can get a "spore-print," showing a pattern like the arrangement of the gills, and coloured white, pink, purple, etc., according to the colour-group to which the species belongs.

Had I been treating on any other branch of botany, I should here have added a few notes on the best methods of preserving Agarics for the herbarium; but, unfortunately, all I can say on this subject is of a negative character.

The fact is that, with the exception of a few woody or leathery forms, it is impossible to preserve specimens of the Agaricacæ so as to be of much use for future reference and comparison, and the student is therefore deprived of one of the greatest aids to study—a collection of named types with which to compare his finds.

In order as far as possible to make up for this deficiency, every student of the Fungi should be able to make accurate, though not necessarily artistic, coloured sketches of the specimens he finds. These sketches ought to give the general appearance of the fungus both in its mature and young state, and also outline sections to show the exact shape of the pileus, attachment of the gills, structure of the stem, etc. If the student is a microscopist, the size and form of the spores should also be given, and notes should always be made of their colour, and of any other characters which cannot be well shown on the drawing, as sliminess, smell, taste, habitat, etc. Photography may also be used as a valuable adjunct to the pencil.

I will close these notes by giving the names of a few useful text books for the benefit of anyone who may wish to pursue the study of the larger fungi. Undoubtedly the most complete work at the present time is Masee's *British Fungus Flora*, in four volumes (1893). Another excellent work is Stevenson's *British Fungi; Hymenomycetes* (1886). These works were published at 30s. and £2 2s. respectively, but can now, I believe, be obtained at a much lower price. As a short and clear introduction to the subject, I may mention the *Guide to Sowerby's Models of British Fungi*, by Worthington G. Smith, issued by the Natural History Museum, South Kensington, at the low price of fourpence. Those who wish to study the edible species, should obtain Dr. M. C. Cooke's little book on *Edible and Poisonous Fungi*.

The system of classification adopted in this list is that of Masee's useful little handbook to European Agaricaceæ.

Under this system the colour of the spores is taken as the primary character, and the whole of the Agaricaceæ are split up into the five primary groups following :

1. *Leucosporæ*.—Spores white (occasionally very pale ochraceous or pinkish).
2. *Chlorosporæ*.—Spores green (one species only).
3. *Rhodosporæ*.—Spores salmon-pink.
4. *Ochrosporæ*.—Spores brown of various shades, from ochraceous to rust coloured, or umber.
5. *Melanosporæ*.—Spores purple, purplish-brown, or black.

In the present article the white-spored species only are dealt with; these form by far the largest of the five groups, the remaining groups, which between them include only about as many species as the *Leucosporæ* alone, being reserved for a future article.

In addition to my own observations, the list contains contributions from the following sources, indicated by the initials appended to the respective records :

E. B.—*The Natural History of Tutbury and Fauna and Flora of Burton-on-Trent and Neighbourhood*," by Sir Oswald

Mosley, Bart., and Edwin Brown (1863) (a few records only relate to Derbyshire).

M.R.S.—The Fungus Forays of the Midland Railway Natural History Society, organised by Mr. Thomas Hey (president). At several of these Forays the Society has had the great advantage of the presence of the well-known mycologist, Mr. Charles Crossland, F.L.S., of Halifax.

W. R. L.—The Rev. W. R. Linton, M.A., Vicar of Shirley.

LEUCOSPORÆ.

A. MOLLES.—*Fleshy fungi, not woody, corky, or leathery.*
**Volva or ring, or both present.*

GENUS AMANITA.

Distinguishing characters.—Volva and ring both present, gills usually free. In some species the volva is not obvious, being closely attached to the base of the stem, but its presence can always be inferred from the warts or loose patches on the pileus. The species are large, and often handsome; many are exceedingly poisonous, but one common species is edible; they all grow in woods or under or near to scattered trees.

Amanita phalloides Fr.

Frequent. Padley Wood, Repton Shrubs, etc. Very poisonous. This species has sometimes been mistaken for the Mushroom, but is readily distinguishable by the volva and the permanently white gills.

A. muscaria (L.). (The Fly Agaric.)

Not uncommon, especially in the north of the county, in woods of birch and Scotch fir. This is one of our most poisonous fungi, but its brilliant scarlet pileus, spotted with white, is so distinctive that it cannot be mistaken.

A. rubescens, Pers.

Fairly common. A good edible fungus; easily distinguished from allied species by the flesh turning blood-red when broken or bruised.

AMANITOPSIS.

This genus differs from *Amanita* only in the absence of the ring.

Amanitopsis vaginatus (Bull.).

Common in open woods and under scattered trees.

LEPIOTA.

This genus is characterised by having a ring but no volva, a scaly pileus, and usually free gills. Several of the larger species are edible.

Lepiota procera (Scop.). (Parasol Mushroom.)

Frequent in pastures; also occasionally occurring in woods. One of the best of edible species.

L. rachodes (Vitt.).

Abundant under spruce firs in Shirley Wood. Edible.

L. excoria (Schæff.).

In pastures, uncommon. Scalpcliff Hill, Stapenhill (E.B.). Swarkestone Meadows (M.R.S.).

L. Friesii (Lasch).

Shirley Wood (W.R.L.); hedge bank near Duffield (M.R.S.).

L. cristata (A. and S.).

In woods and among grass. Wirksworth; Via Gellia; Coxbench (M.R.S.).

L. carcharia, Pers.

In fir plantation, Wirksworth Moor; Quarndon Common (T. B. Roe).

L. granulosa (Batsch).

Common in open woods and among rough grass.

L. amianthina (Scop.).

Common among leaf-mould in woods.

L. seminuda (Lasch).

On the ground among leaf-mould, Via Gellia.

ARMILLARIA.

Volva absent, ring present; gills adnate, sinuate, or slightly decurrent.

Armillaria mellea (Vahl).

Very common everywhere, and a most destructive tree parasite; usually growing in clusters on or near to tree stumps, or round the roots of living trees. The fungus attacks trees through the roots, and spreads underground from tree to tree by means of its black cord-like mycelium. These black cords may often be found forming a net-work beneath the bark of trees which have been killed by the fungus.

A. mucida (Schrad.).

On living beech trunk, Kedleston Park, 1906. A destructive parasite on beech trees.

***Both Volva and Ring absent.*

TRICHOLOMA.

Gills sinuate; stem fleshy, without a tough cartilaginous outer coat or skin. Generally stout fleshy fungi, of large or medium size.

Tricholoma ustale, Fr.

Coxbench, 1906 (M.R.S.).

T. rutilans (Schæff.).

Frequent on the ground and on stumps in fir woods, as at Hathersage, Wirksworth, and Shirley.

T. vaccinum (Pers.).

In fir wood, Shirley (W.R.L.).

T. imbricatum, Fr.

In fir woods. Hathersage; Wirksworth.

T. personatum, Fr. (Blewitts or Blue Buttons).

Common in pastures in late autumn, often forming large "fairy rings." A well-known edible species.

T. nudum (Bull.).

In open woods and under scattered trees; fairly common.

T. panaeolum, Fr.

In pastures; common. This species also forms "fairy rings." Edible.

T. melaleucum (Pers.).

Among grass, Wirksworth.

T. sordidum, Fr.

In fields and on manure heaps, Hathersage, Matlock, Wirksworth, Shirley.

T. terreum (Schæff.).

Common in open woods, etc.

T. cuneifolium, Fr.

In heathy pastures, Wirksworth. Smell strong of new meal.

T. carneum (Bull.).

In hilly pastures, Wirksworth.

T. gambosum, Fr. (St. George's Mushroom.)

In pastures in spring. Crich Stand, 1905; Trent, 1907 (T. Hey). Edible.

RUSSULA.

The chief generic character is the nature of the gills, which are rigid and brittle, as are also the pileus and stem; the gills are also more equal in length than in other Agarics; they are variously attached, but most often slightly adnexed, often almost free, rarely decurrent. The pileus is usually depressed in the centre, rarely umbonate; the stem stout and solid, though somewhat spongy internally. The species grow on the ground in woods or under trees. Many are brightly coloured, shades of red and purple being frequent. Many of the species are highly acrid and poisonous.

Russula nigricans, Fr.

In woods near Black Rocks, Cromford; Padley Wood; Duffield (M.R.S.); Bradley Wood; Ling Hills, Mugginton. A large hard, almost woody species, turning black when mature.

R. adusta, Pers.

Coxbench and Little Eaton (M.R.S.).

- R. purpurea*, Gillet.
Duffield (M.R.S.).
- R. drimeia*, Cke.
Along wood-side, Wirksworth Moor. Spores and gills pale yellow. Very acrid.
- R. virescens* (Schæff.).
Repton Shrubs (E.B.).
- R. vesca*, Fr.
Little Eaton and Duffield (M.R.S.); Hathersage.
- R. cutefracta*, Cke.
Bradley Wood.
- R. lepida*, Fr.
Duffield (M.R.S.).
- R. cyanoxantha* (Schæff.).
Frequent in woods and under scattered trees.
- R. foetens*, Pers.
Repton Shrubs (E.B.); Pitty Side, Wirksworth; near Duffield (M.R.S.). Smell very strong and unpleasant.
- R. fellea*, Fr.
Frequent in woods. Duffield (M.R.S.); Shirley. Very acrid and poisonous.
- R. emetica*, Fr.
Very common in woods. Acrid and poisonous.
- R. granulosa*, Cke.
Near Duffield (M.R.S.).
- R. ochroleuca*, Fr.
Very common in woods. Acrid.
- R. fragilis*, Pers.
Common in woods. Acrid.
- R. puellaris*, Fr.
Coxbench and Duffield (M.R.S.).
- R. alutacea*, Fr.
Among grass, Gilkin Side, Wirksworth.
- R. ochracea*, A. and S.
Coxbench (M.R.S.).

MYCENA.

Stem with a tough cartilaginous bark or skin. Gills variously attached, never truly decurrent, though sometimes with a broad decurrent tooth. Margin of pileus always straight. Usually small and delicate fungi, with long slender stems and conical or campanulate pilei.

Mycena olivaceo-marginata, Mass. Shirley (W.R.L.).

M. pura, Pers.

In woods and by roadsides; fairly common.

M. flavo-alba, Fr.

Among grass; common.

M. lactea, Pers.

Swarkestone, Coxbench, and Duffield (M.R.S.); Shirley.

M. rugosa, Fr.

On dead wood; common.

M. galericulata (Scop.).

Very common; growing in clusters on stumps, etc.; also occasionally solitary on the ground.

M. polygramma (Bull.).

On stumps and on the ground; fairly common.

M. pullata (Berk. and Cke.).

Coxbench (M.R.S.).

M. alcalina, Fr.

On dead wood, fairly common; this and the next species are remarkable for their strong alkaline smell.

M. ammoniaca, Fr.

Among grass; common.

M. cinerea, Mass. and Crossl.

Among grass, Shirley; Windley.

M. metata, Fr.

Shirley Wood; Matlock Moor; Wirksworth; Windley.

Often grows in crowds on dead fir needles.

M. filopes (Bull.).

Frequent in woods among dead leaves.

M. iris (Berk.).

On fir stumps; Padley Wood; Hopton.

M. amicta, Fr.

Near Duffield (M.R.S.).

M. acicula (Schæff.).

Among moss on dead trunk, Shirley Wood. A minute but beautiful species, with bright crimson pileus and yellow stem and gills.

M. sanguinolenta (A. and S.).

Common among dead leaves. Stem and gills when broken exuding a dark-red juice.

M. galopoda, Fr.

Very common. In this and the next species the juice is white and milky.

M. leucogala, Cke.

Ling Hills, Mugginton.

M. epipterygea (Scop.).

Common among grass and dead leaves in late autumn. Stem and pileus very slimy.

M. tenerrima (Berk.).

On fir cones, Shirley (W.R.L.); Coxbench (M.R.S.).

M. saccharifera (B. and Br.), *var. electica* (Buck.).

On decaying stems of rushes in swamp, Pitty Hollow; a very minute but beautiful white species.

M. capillaris (Schum.).

On dead beech leaves, Padley Wood. A minute white species.

COLLYBIA.

Margin of pileus incurved when young. In other respects this genus agrees with *Mycena*, but the species are usually tougher and stouter.

Collybia radicata (Bull.).

About old stumps; common. Easily recognised by its brown, wrinkled and very slimy pileus, shining white distant gills, and long gradually tapering root.

- C. platyphylla*, Fr.
Near Duffield (M.R.S.).
- C. maculata* (A. and S.).
Common in woods. A large handsome species, with very crowded gills, which are white, with reddish stains.
- C. butyracea* (Bull.).
Common in fir woods.
- C. velutipes* (Curt.).
Very common on stumps and dead branches, sometimes also on living trees, growing usually in clusters. It derives its name from the velvety appearance of the rich brown stem.
- C. confluens* (Pers.).
Wirksworth; in clusters among dead leaves.
- C. conigena* (Pers.).
On cones of Scotch fir in plantation above Froggatt Edge.
- C. tuberosa* (Bull.).
Padley Wood; Duffield (M.R.S.). This little species grows on the rotting remains of other fungi.
- C. tenacella* (Pers.).
Shirley (W.R.L.).
- C. dryophila* (Bull.).
Common among dead leaves, etc.
- C. rancida*, Fr.
Among dead leaves, Shirley. Remarkable for its strong smell of rancid meal.
- C. coracina*, Fr.
Near Duffield (M.R.S.).
- C. ambusta*, Fr.
Hathersage; Wirksworth; Coxbench (M.R.S.). Generally grows in crowds on ground where grass or refuse has been burnt.
- C. clusilis*, Fr.
Among Sphagnum in swamps, Pitty Hollow, Wirksworth.

MARASMIUS.

This genus agrees in structure with *Collybia*, but the substance is more tough, and has the power of reviving when moistened after being dried up.

Marasmius urens (Bull.).

Shirley Wood.

M. peronatus (Bolt.).

Among dead leaves in woods, common.

M. oreades (Bolt.). (Fairy-Ring Champignon.)

Common in pastures; always growing in the circles known as "fairy rings." A good edible species.

M. ramealis (Bull.).

On dead twigs, especially bramble stems, Via Gellia.

M. rotula (Scop.).

On dead twigs, Via Gellia, etc.

M. graminum (Berk.).

On fragments of cut grass on lawn, Wirksworth, 1905.

M. androsaceus (L.).

On dead leaves, etc.; common.

M. epiphyllus, Fr.

On dead leaves, Via Gellia.

LACTARIUS.

This genus derives its name from the milky juice (usually white, but sometimes coloured) which exudes from every part when broken or cut. The only other Agarics which exude a similar juice are certain species of *Mycena*, but these can always be distinguished by their entirely different habit. The Lactarii are large or medium sized fungi, with stout solid stem and decurrent or broadly adnate gills. In general structure the genus is very closely allied to *Russula*, which genus it also resembles in the acrid and poisonous character of many of the species, and in their woodland habitat.

Lactarius turpis (Weinm.).

Common in woods. Very acrid and poisonous.

- L. insulsus*, Fr.
Among grass, Dean Hollow, Wirksworth. Spores very pale ochraceous.
- L. pyrogalus* (Bull.).
Repton Rocks; Coxbench (M.R.S.). Very acrid and poisonous.
- L. glaucescens*, Crossl.
Gilkin Side, Wirksworth, 1906. Milk white at first, slowly changing to dull green.
- L. piperatus* (Scop.).
Repton Shrubs (E.B.).
- L. deliciosus* (L.).
Shirley, 1906 (W.R.L.). Milk at first bright orange, but soon changing to green. Edible.
- L. quietus*, Fr.
Common in woods.
- L. rufus* (Scop.).
Common in woods.
- L. glyciosmus*, Fr.
Cromford Moor. Fragrant; smell exactly like cocoa-nut.
- L. volemus*, Fr.
Near Duffield (M.R.S.).
- L. mitissimus*, Fr.
Little Eaton (M.R.S.).
- L. subdulcis* (Bull.).
Common in woods.

HYGROPHORUS.

Distinguishing characters.—The hymenium or outer portion of the gill when mature becomes soft and waxy, and separates readily from the trama or inner portion. The gills are generally decurrent, but are sometimes adnate and sometimes almost free. This genus comprises most of the beautiful crimson, yellow and green toadstools so abundant among grass in autumn. The commonest of the red species are *H. coccineus*, *H. puniceus*, and *H. miniatus*; of the yellow species, *H. chlorophanus*. Several species are edible.

Hygrophorus hypothejus, Fr.

In fir woods, Wirksworth; Matlock; Brewards Car, Windley.

H. pratensis (Pers.).

Common in pastures. Edible.

H. virgineus (Wulf.).

Common in pastures. Edible.

H. niveus (Scop.).

Common in pastures. Edible.

H. ovinus (Bull.).

In pastures, Shirley.

H. irrigatus, Fr.

In pastures, Wirksworth.

H. laetus, Fr.

Among grass, Wirksworth; Shirley; Little Eaton (M.R.S.).

H. ceraceus (Wulf.).

In pastures, Wirksworth, Shirley, Duffield, etc.

H. coccineus (Schæff.).

Very common in pastures, etc.

H. miniatus, Fr.

In pastures, Wirksworth, Shirley, Little Eaton, etc.

H. puniceus, Fr.

In pastures, etc. Common.

H. obrusseus, Fr.

In pastures, Wirksworth, etc.

H. conicus (Scop.).

In pastures, etc.; common. Pileus orange or crimson at first, but turning black when mature.

H. calyptræformis (Berk.).

In pastures, Wirksworth. A very beautiful species; the pileus of a pale clear flesh-pink.

H. chlorophanus, Fr.

Common in pastures.

H. psittacinus (Schæff.). (Paraquet Mushroom.)

In pastures, very common. Very slimy; variable in colour, being generally yellow, more or less marked with green; the green colour is caused by a slimy covering, which soon washes off, exposing the yellow surface of the pileus.

H. spadiceus, Fr.

Little Eaton, 1903 (M.R.S.).

H. unguinosus, Fr.

Grindleford; Wirksworth; Little Eaton (M.R.S.). Very slimy.

H. nitratus (Pers.).

Wirksworth. Remarkable for its strong nitrous smell.

CLITOCYBE.

Distinguishing characters.—Gills more or less decurrent. Stem fleshy or fibrous, without a cartilaginous bark. Pileus frequently depressed in the centre, sometimes actually funnel-shaped.

Clitocybe nebularis (Batsch).

Among dead leaves in woods, Horsley Car; Shirley; Wirksworth. A fine fleshy species, generally about three inches in expanse, but sometimes much larger. It is one of the best of edible fungi.

C. phyllophila, Fr.

Common among dead leaves.

C. dealbata (Sow.).

Coxbench (M.R.S.). Edible.

C. infundibuliformis (Schæff.).

Bretby Park (1895); Coxbench (M.R.S.); Wirksworth.

C. geotropa (Bull.).

Shirley; Wirksworth. A large handsome species.

C. cyathiformis, Fr.

Common among grass in late autumn. Remarkable for its deeply depressed funnel-shaped pileus.

C. brumalis, Fr.

Very common among dead leaves in late autumn.

C. fragrans (Sow.).

Common in woods and poor pastures. A small white species, with a strong smell of Anise.

LACCARIA.

Differs from *Clitocybe* in the gills when mature being dusted with the white spores; they are also not decurrent, but broadly adnate.

Laccaria laccata (Scop.).

Very common in woods. The usual form is wholly brick-red when moist, and ochraceous when dry; but a very beautiful variety frequently occurs of a clear amethyst purple, drying to pale lavender; this is var. *amethystina*, Bolton.

OMPHALIA.

This genus is most closely allied to *Mycena*, but the gills are deeply decurrent and the pileus depressed. The species are all small and delicate, growing among moss or short grass or on dead wood.

Omphalia umbellifera (L.).

Shirley (W.R.L.); Duffield (M.R.S.).

O. demissa, Fr.

Among moss on bare face of limestone rock, Sprink Wood, Wirksworth, 1907.

O. grisea, Fr.

Coxbench, on wet dead wood (M.R.S.); Shirley; Ling Hills, Mugginton.

O. fibula (Bull.).

Among moss and short grass; fairly common.

O. bullula (Brig.).

On decayed twigs in swamp, Pitty Hollow, Wirksworth; Shirley (W.R.L.).

PLEUROTUS.

All the species grow normally on tree trunks, stumps, or twigs, and in consequence are either stemless or lateral stemmed.

Pleurotus ostreatus (Jacq.).

Not uncommon. Between Repton and Bretby (E.B.); Wirksworth; Shirley (W.R.L.).

P. euosmus (Berk.).

Between Repton and Bretby.

CANTHARELLUS.

Distinguishing characters.—Gills decurrent, thick and vein-like, with a blunt edge; usually forked or branching. The larger species grow on the ground, and are central stemmed; some of the smaller species grow on mosses, and are lateral-stemmed or stemless.

Cantharellus aurantiacus, Fr.

In fir woods or on heathy banks, etc., rather common. The deep orange gills are regularly dichotomously branched.

B. TENACES.—*Substance leathery, corky, or woody.*

LENTINUS.

Substance tough and leathery, drying up and reviving with moisture; edge of gills finely toothed. Most of the species grow on decaying wood.

Lentinus cochleatus, Fr.

Bretby (E.B.). Sweet smelling.

PANUS.

Substance tough, drying up and reviving with moisture; stem excentric, lateral or entirely absent; gills decurrent. Most of the species grow on wood.

Panus conchatus, Fr.

Repton (E.B.).

P. stypticus, Fr.

On stumps, Cromford Moor, January, 1907.

LENZITES.

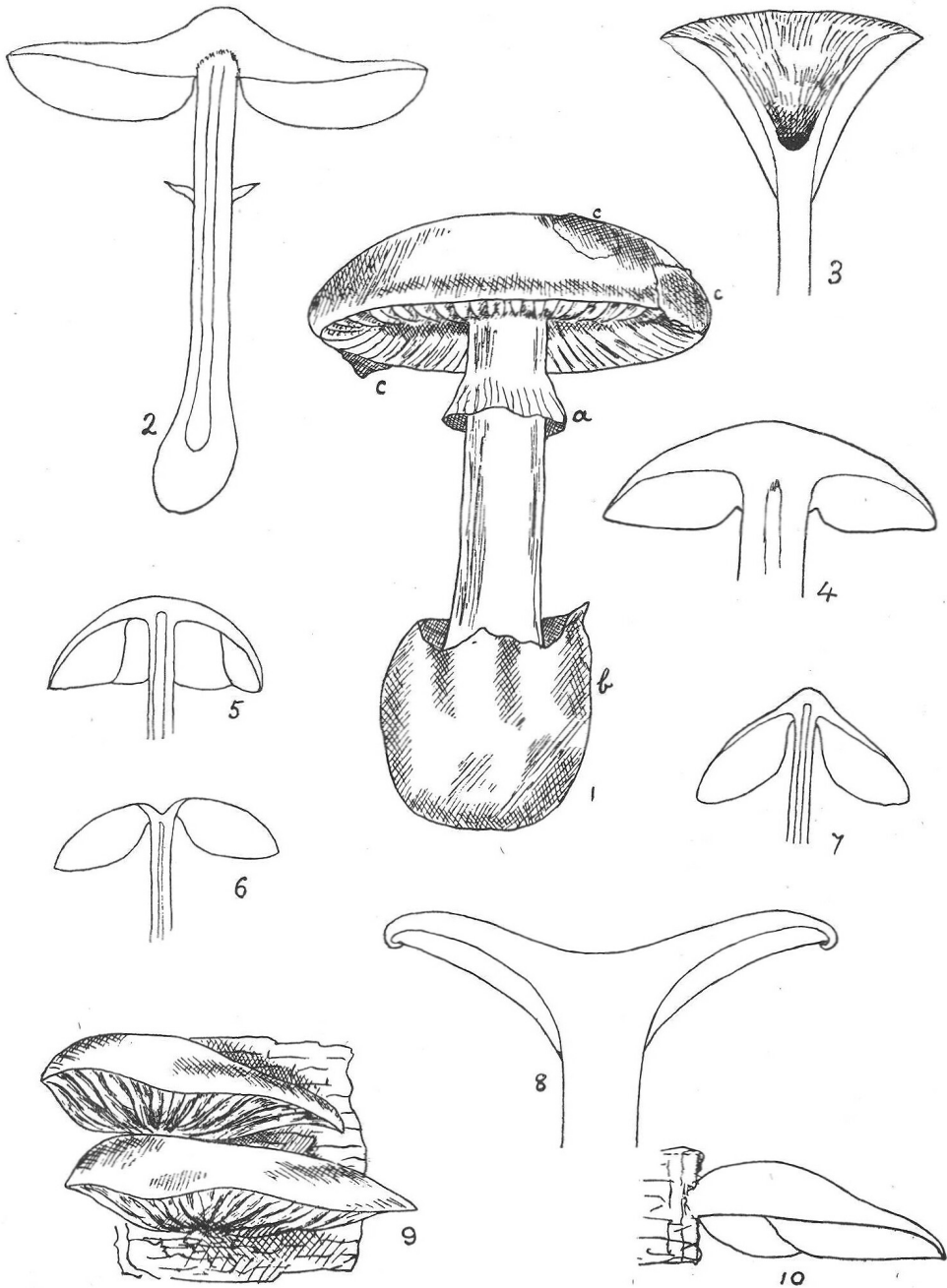
Pileus woody or corky, lateral and sessile; gills often branching and anastomosing.

Lenzites betulina, Fr.

On stumps, Duffield (M.R.S.); Cromford Moor; Hopton.

DESCRIPTION OF FIGURES IN PLATE.

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- Fig. 1.—*Amanita phalloides*, showing (a) ring, (b) volva, (c) detached fragments of volva on pileus.
- „ 2.—*Lepiota excoxiata*, section showing umbonate pileus, free gills, ring and hollow stem.
- „ 3.—*Clitocybe cyathiformis*, section showing funnel-shaped (infundibuliform) pileus and decurrent gills.
- „ 4.—*Hebeloma glutinosum*, section showing sinuate gills.
- „ 5.—*Stropharia semiglobata*, section showing adnate gills.
- „ 6.—*Leptonia asprella*, section showing umbilicate pileus and adnexed gills.
- „ 7.—*Nolanea pascua*, section showing campanulate pileus and adnexed gills.
- „ 8.—*Paxillus involutus*, section showing depressed pileus, solid stem, involute margin and decurrent gills.
- „ 9.—*Crepidotus mollis*, showing sessile, bracket-shaped (dimidiate) pileus.
- „ 10.—Section of ditto.



STRUCTURE OF THE MUSHROOM.